

# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver



Author(s): Barry Canton [bcanton@mit.edu]

Last Update: March 10, 2006

## Description and Usage:

**Device input is 3OC<sub>6</sub>HSL. Device output is PoPS** produced at a LuxR-regulated operator

A transcription factor [LuxR] that is active in the presence of cell-cell signaling molecule [3OC<sub>6</sub>HSL] is constitutively expressed from an operator [TetR]. Full PoPS output at high 3OC<sub>6</sub>HSL levels and low plasmid copy [e.g., pSB3K3] results in a reduced cell growth rate. If used in a cell containing TetR then a second input signal [aTc] can be used to produce a logical *AND* function.

## Characteristics

Full Output Variability Coefficient: **9.5%**

Switch Point: **10 nM** 3OC<sub>6</sub>HSL, exogenous

LH Latency: **12** minutes

HL Latency: **40** minutes

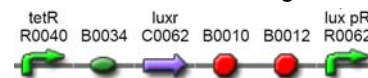
Cross Talk: with **AHL derivatives**. See specificity below

## Key Components

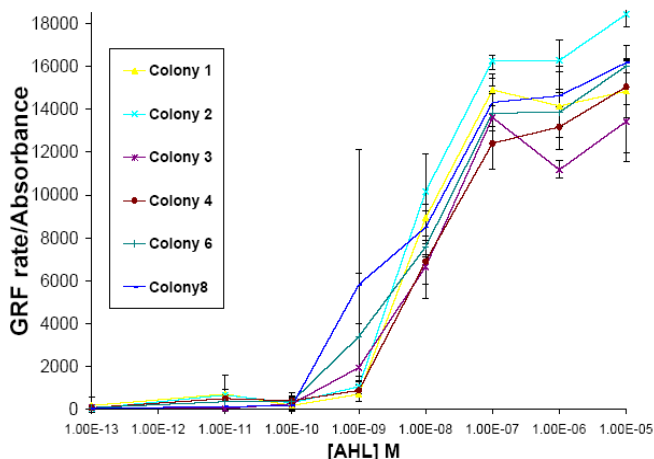
**BBa\_R0040:** TetR-regulated operator

**BBa\_C0062:** luxR ORF

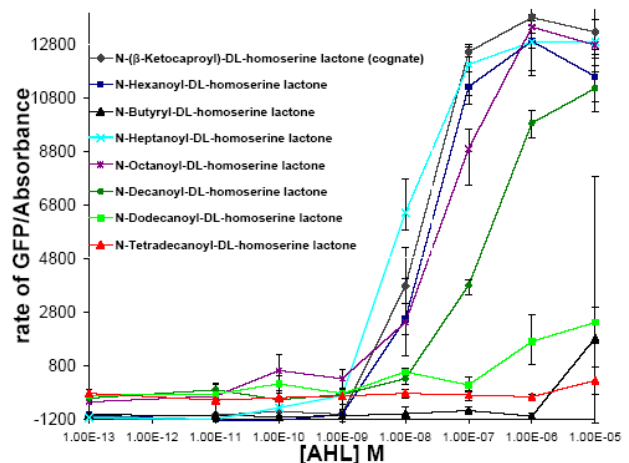
**BBa\_R0062:** LuxR-regulated operator



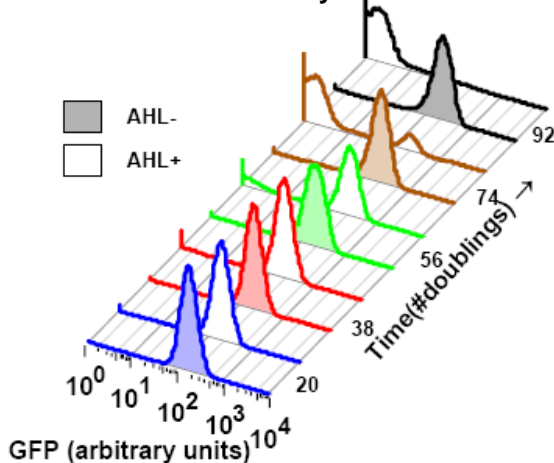
## Transfer Function Variability:



## Specificity:



## Performance Stability:



**Full Induction:** device non-functional after 74 doublings

**No induction:** device functional for over 100 doublings

## Compatibility

Device has been shown to work in *MC4100*, *MG1655*, and *DH-5α*.

Device has been shown to work on *pSB3K3* and *pSB1A2*.

Device has been shown to work with *E0430* and *E0434*.

Crosstalk with systems containing *TetR*.

\*Device output measured indirectly via PoPS-driven fluorescence from *BBa\_E0430*, [ ] = geometric mean, arbitrary units. Host cell *MC4100*, device carried on *pSB3K3*, 100ml batch flask, supplemented M9 media, FACSscan cytometer [see MIT SBWG FACS protocol].

Registry of Standard Biological Parts

making life better, one part at a time